Space Weather Forecast

Issued on Sunday 1 December 2024 at 12:25 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only low Common-class flares observed. There are eight sunspot regions currently on the visible disc, the largest of which are from a pair of regions in the southwest. However these are magnetically relatively simple and have been largely inactive. The next most notable is the larger of the regions in the southeast. This is a small east-west aligned sunspot, but also a relatively simple and currently inactive bipolar group.

No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Slow wind conditions prevailed with background to slightly elevated solar wind speeds, ranging 350-440km/s. Total Interplanetary Magnetic Field was Weak to Moderate with north-south component also Weak to Moderate and mainly northward directed. Geomagnetic was Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with a chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: A slow CME from a filament eruption on 27 Nov has a chance of a glancing impact on Day 2 (02 Dec) or early Day 3 (03 Dec), however only limited enhancements are likely. Earth may also encounter the faster solar winds from a small coronal hole alongside this. However, any enhancement is expected to be minimal with mainly background to slightly elevated solar winds persisting throughout. Geomagnetic activity is expected to be mainly Quiet with isolated Unsettled intervals. Any CME or solar wind enhancement day 2-3 (02-03 Dec) brings a chance of an Unsettled Active spell and a slight chance of G1/Minor Storms.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background, with only a slight chance of these increasing if any larger solar flares were to occur.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	40	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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